Basic Drainage area in centimeters^2 = 4389.12 × [(Recess Volume × Recess Ratio) + (Weather Deck Volume × Weather Deck Ratio)]; or

Basic Drainage area in inch^2 = (Recess Volume × Recess Ratio) + (Weather Deck Volume × Weather Deck Ratio)

Recess Volume = $(B_R \times D_R) - V_R$

B_R=average height in centimeters (feet) of the bulwark above the well deck or cockpit deck;
D_R=total deck area of the cockpit or well deck in the after ⅔ of the vessel length (LOD) measured in centimeters^2 (feet^2).
V_R=volume of any weather tight structure below the bulwark of the well deck or cockpit deck.

Recess Ratio = L_R / L_C

L_R=the length of the recess in the after ⅔ vessel length (LOD).
L_C=⅔ vessel length (LOD).

Weather Deck Volume = $(B_D \times D_D) - V_S$

B_D=average height in centimeters (feet) of the bulwark above the weather deck;
D_D=total deck area of the weather deck adjacent to bulwarks but not in way of the cockpit or well deck in the after ⅔ of the vessel length (LOD) measured in centimenters^2 (feet^2).
V_S=volume of any weather tight superstructure below the bulwark on the weather deck located within D_D.

Weather Deck Ratio = L_D / L_C

L_D=the length of the weather deck bulwark in the after ⅔ of the vessel length (LOD).
L_C=⅔ vessel length (LOD).

(b) Vessels with bulwarks in the forward part of the vessel shall not form a well with the deckhouse which retains water.

[CGD 85–080, 61 FR 966, Jan. 10, 1996; 61 FR 20557, May 7, 1996]

Subpart E—Special Installations

§ 178.510 Ballast.

(a) Any solid fixed ballast used to comply with the requirements of parts 170, 171, 178, and 179 of this chapter must be:

(1) Stowed in a manner that prevents shifting of the ballast; and

(2) Installed to the satisfaction of the cognizant OCMI.

(b) Solid fixed ballast may not be located forward of the collision bulkhead unless the installation and arrangement of the ballast and the collision bulkhead minimizes the risk of the ballast penetrating the bulkhead in a collision.

(c) Solid fixed ballast may not be removed from a vessel or relocated unless approved by the cognizant OCMI except that ballast may be temporarily moved for a vessel examination or repair if it is replaced to the satisfaction of the OCMI.

(d) Water ballast, either as an active system or permanent, must be approved by the Commanding Officer, Marine Safety Center.

PART 179—SUBDIVISION, DAMAGE STABILITY, AND WATERTIGHT INTEGRITY

Subpart A—General Provisions

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179.115 Applicability to existing vessels.

Subpart B—Subdivision and Damage Stability Requirements

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Subpart C—Watertight Integrity Requirements

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179.320 Watertight bulkheads.
179.330 Watertight doors.
179.340 Trunks.
179.350 Openings in the side of a vessel below the bulkhead or weather deck.
179.360 Watertight integrity.

AUTHORITY: 43 U.S.C. 1333; 46 U.S.C. 2103, 3306, 3703; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

SOURCE: CGD 85–080, 61 FR 971, Jan. 10, 1996, unless otherwise noted.

Subpart A—General Provisions

§ 179.115 Applicability to existing vessels.

An existing vessel must comply with the subdivision, damage stability, and watertight integrity regulations which were applicable to the vessel on March 10, 1996, or, as an alternative, the vessel

may comply with the regulations in this part.

Subpart B—Subdivision and Damage Stability Requirements

§ 179.210 Collision bulkhead.

(a) A vessel of more than 19.8 meters (65 feet) in length must have a collision bulkhead.

(b) A vessel of not more than 19.8 meters (65 feet) in length must have a collision bulkhead if it:

(1) Carries more than 49 passengers;

(2) Operates on exposed waters;

(3) Is of more than 12.2 meters (40 feet) in length and operates on partially protected waters; or

(4) Is constructed of wood on or after March 11, 2001, and operates in cold water.

(c) A double-ended ferry required to have a collision bulkhead must have a collision bulkhead at each end of the vessel.

§ 179.212 Watertight bulkheads for subdivision.

(a) A vessel of not more than 19.8 meters (65 feet) in length must comply with § 179.220 of this part if it:

(1) Carries more than 49 passengers; or

(2) Is constructed of wood on or after March 11, 2001, and operates in cold water.

As an alternative, the above vessels may comply with the intact stability requirements of §§ 170.170, 170.173, 171.050 and 171.055 of this chapter, and comply with the Type II subdivision requirements of §§ 171.070 through 171.073 in subchapter S of this chapter.

(b) A vessel of more than 19.8 meters (65 feet) in length must comply with the Type II subdivision requirements of §§ 171.070 through 171.073 in subchapter S of this chapter.

(c) A vessel that carries more than 12 passengers on an international voyage must meet the Type II subdivision requirements of §§ 171.070 through 171.073 in subchapter S of this chapter.

§ 179.220 Location of watertight bulkheads for subdivision.

(a) The maximum distance between adjacent main transverse watertight bulkheads on a vessel, required by § 179.212(a) of this part to comply with this section, must not be more than the smaller of the following:

(1) One third of the length of the bulkhead deck; or

(2) The distance given by the following equation:

$$d = \frac{(F)(f)(L)}{D}$$

where:

d=the maximum length of the bulkhead deck in meters (feet) between adjacent main transverse watertight bulkheads;

F=the floodable length factor from Table 179.220(a);

f=the effective freeboard in meters (feet) calculated for each pair of adjacent bulkheads in accordance with paragraph (b) of this section;

L=Length Over Deck in meters (feet) measured over the bulkhead deck; and

D=the depth in meters (feet), measured amidships at a point one-quarter of the maximum beam out from the centerline, from the inside of the bottom planking or plating to the level of the top of the bulkhead deck at side as shown in Figure 179.220(a).

TABLE 179.220(a)—TABLE OF FLOODABLE LENGTH FACTORS

(d/L) × 100	F
0–15	0.33
20	0.34
25	0.36
30	0.38
35	0.43
40	0.48
45	0.54
50	0.61
55	0.63
60	0.58
65	0.53
70	0.48
75	0.44
80	0.40
85	0.37
90–100	0.34

NOTE 1: Where: d=distance in meters (feet) from the midpoint of the compartment to the forward-most point on the bulkhead deck excluding sheer; and L=length over deck in meters (feet) measured over the bulkhead deck.

NOTE 2: Intermediate values of floodable length factor may be obtained by interpolation.